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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/585,269

10/04/2006

Yusuke Konagai

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EXAMINER

MONIKANG, GEORGE C

ART UNIT

PAPER NUMBER

2614

MAIL DATE

DELIVERY MODE

06/08/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/585,269	Applicant(s) KONAGAI, YUSUKE	
	Examiner GEORGE C. MONIKANG	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/585,269.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asada et al, US Patent Pub. 2006/0050897 A1, in view of Hatae, US Patent 5,675,655. (The Asada et al reference is cited in IDS filed 3/3/2009)

4. Re Claim 3, Asada et al discloses an audio signal supply apparatus, for a speaker unit comprising a plurality of loudspeaker array units (*Asada et al, fig. 16: SP0-SPn*), comprising: a branching unit that branches an input audio signal into two or more signals (*Asada et al, fig. 16: SC*); a plurality digital FIR filters with coefficients corresponding to each speaker unit, the filter coefficients being determined in accordance with the directivity pattern generated in the control (*Asada et al, fig. 16: DFLF0-DFLFn; DFRF0-DFRFn; DFLB0-DFLBn; DFRB0-DFRBn; para 0102*); a delay unit that provides a first delay for one of the branched audio signals and supplies first delay processed signals to each of the loudspeakers of array speaker unit (*Asada et al, fig. 16: DFLF0-DFLFn; DFRF0-DFRFn; DFLB0-DFLBn; DFRB0-DFRBn; para 0064: within each FIR filter are delay elements that are each supplied to each of the speakers in the array*); a second delay unit that provides a second delay for another of the branched audio signals and supplies second delay processed signals to each of the

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loudspeakers of array speaker unit (Asada et al, fig. 16: DFLF0-DFLFn; DFRF0-DFRFn; DFLB0-DFLBn; DFRB0-DFRBn; para 0064: within each FIR filter are delay elements that are each supplied to each of the speakers in the array); a directivity control unit that generates the first directivity control information and the second directivity control information so that a directional characteristic of the array speaker unit obtained by the first delay differs from the directional characteristic of the array speaker unit obtained by the second delay, and supplies the generated information respectively to each of the first delay unit and the second delay unit (Asada et al, fig. 10: 12; paras 0088, 0137; fig. 16: SP0-SPn: the control circuit calculates the delay times of each digital FIR filter which according to paragraph 0137 affect the directivity of the speakers hence the directivity of the speakers is calculated in the control circuit 12); and an adding unit that adds the first and second delay processed signals applied to each of the respective loudspeakers (Asada et al, fig. 16: AD0-ADn); but fails to disclose one characteristic of the speaker array having narrow directivity and another having wide directivity. Hatae discloses the ability to provide a wide directivity controlled output and a narrow directivity controlled output (Hatae, col. 4, lines 50-54). It would have been obvious to set the delays of the FIR filters in Asada et al to determine the directivity of any of the given speakers (Asada et al, para 0137; fig. 16: SP0-SPn) to be wide directivity, narrow directivity respectively as taught in Hatae (Hatae, col. 4, lines 50-54) or any combination of wide, narrow directivity as seen fit by Asada et al for the purpose of providing sounds to a multitude array of listeners with different hearing capabilities within the same space.

Re Claim 1, the combined teachings of Asada et al and Hatae disclose the audio signal supply apparatus according to claim 3, further comprising: a weighting unit that weights each of the delay processed audio signals from the first and second delay units to be supplied to the loudspeaker units accordance with provided gain control (Asada et al, fig. 16: DFLF0-DFLFn; DFRF0-DFRFn; DFLB0-DFLBn; DFRB0-DFRBn; para 0064: within each FIR filter are amplifiers/weight units elements that are each supplied to each of the speakers in the array); and a storage unit that stores the first control information (Asada et al, fig. 10: 12; paras 0088, 0137; fig. 16: SP0-SPn: the control circuit which has a databse calculates the delay times of each digital FIR filter which according to paragraph 0137 affect the directivity of the speakers hence the directivity of the speakers is calculated in the control circuit 12), which sets the directional characteristic of the array speaker unit as a narrow directivity (Asada et al, fig. 10: 12; paras 0088, 0137; fig. 16: SP0-SPn: the control circuit which has a databse calculates the delay times of each digital FIR filter which according to paragraph 0137 affect the directivity of the speakers hence the directivity of the speakers is calculated in the control circuit 12 could be narrow directivity as in Hatae (Hatae, col. 4, lines 50-54)), and the second control information, which sets the directional characteristic of the array speaker unit as a wide directivity (Asada et al, fig. 10: 12; paras 0088, 0137; fig. 16: SP0-SPn: the control circuit which has a databse calculates the delay times of each digital FIR filter which according to paragraph 0137 affect the directivity of the speakers hence the directivity of the speakers is calculated in the control circuit 12 could be wide directivity as in Hatae (Hatae, col. 4, lines 50-54)), wherein the directivity control unit instruction,

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also the gain control information and supplies the gain control information to the weighting unit (*Asada et al, fig. 16: DFLF0-DFLFn; DFRF0-DFRFn; DFLB0-DFLBn; DFRB0-DFRBn; para 0064: within each FIR filter are amplifiers/weight units elements that are each supplied to each of the speakers in the array and the control circuit 12 could also determine the amplitudes of the FIR filters A0-An (para 0089)*).

Re Claim 2, the combined teachings of Asada et al and Hatae disclose the audio signal supply apparatus according to claim 1, wherein the amount of delays obtained by the second is 0 or an equal amount (*Hatae, col. 6, lines 53-60; col. 6, line 65 through col. 7, line 4*).

Claim 4 has been analyzed and rejected according to claim 3.

Claim 5 has been analyzed and rejected according to claim 2.

1. Re Claim 6, the combined teachings of Asada et al and Hatae disclose the audio signal apparatus of claim 3; a frequency property correction unit that corrects frequency property of audio signals (*Asada et al, fig. 10: 12; paras 0088-0089: the control circuit 12 adjusts the frequency when calculating the properties of the FIR filter*).

Claim 7 has been analyzed and rejected according to claim 1.

Re Claim 8, the combined teachings of Asada et al and Hatae disclose the audio signal supply apparatus according to claim 4, wherein the directional characteristic of the array speaker unit obtained through the first delay overlap with the directional characteristic of the array speaker unit obtained through the second delay (*Hatae, fig. 5; fig. 7: 202-205; col. 7, lines 29-37*).

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEORGE C. MONIKANG whose telephone number is (571)270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George C Monikang/
Examiner, Art Unit 2614

6/3/2009

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614